

Appl. No. 10/708,799
Amdt. dated May 16, 2006
Reply to Office action of March 08, 2006

REMARKS

The Examiner asserts that the second non-elected embodiment corresponds to claims 7 and 24 and therefore claims 7 and 24 have been withdrawn from consideration

Applicant has withdrawn claims 7 and 24 without prejudice or disclaimer to the subject matter thereof according to election requirement by Examiner.

The specification is objected to because of the following informalities: In paragraph 0034, lines 21-22, reference is made to the step for setting the threshold value TH as "step 120" while Figure 3 illustrates this step as "110"

Paragraph [0034] is amended to indicate that setting the threshold is performed in step 110, as pointed out by the Examiner. No new matter is entered.

Claims 1-6, 9, and 11-17 are rejected under 35 USC 101 because the claimed invention is directed to non-statutory subject matter, specifically, non-statutory process claims

Applicant has amended the preamble of independent method claims 1 and 13 to be a "method of timing utilizing an imprecise timer". Additionally, the concrete and tangible result originally claimed in claims 2 and 14 of "generating an acknowledgement event if the count value reaches the threshold value" is added to the independent claims, respectively. Claims 2 and 14 are correspondingly cancelled. No new matter is entered. In this way, the present invention as claimed in currently amended claims 1 and 13 no longer solely consists of the manipulation of an abstract idea being manipulation of threshold values, as was stated by the Examiner concerning original claims 1 and 13. Further amendments made to claims 1 and 13 are described below. Consideration of currently amended claims 1 and 13 is respectfully requested.

Claims 20 and 32 are rejected under 35 USC 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which

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applicant regards as the invention. Claim 20 is considered to be vague and indefinite because it refers to "the counting module" and "the decision logic" while there is no previous mention. Claim 32 is similarly considered to be vague and indefinite because it refers to "the decision logic" while there is no previous mention of any "decision logic"

5 Claim 20 is amended to delete the counting module and to be dependent on claim 19, which introduces the decision logic. Claim 32 is similarly amended to be dependent on claim 31, which introduces the decision logic. No new matter is entered. Reconsideration of claims 20 and 32 is respectfully requested.

10 Claims 1-3, 5, 12, 18-20, 22, and 29 are rejected under 35 USC 102b as being anticipated by US patent no. 6,084,441 to Kawai

In addition to the above described amendments, independent claim 1 is amended to include tracking an actual time interval between each of the reference events, each actual time interval corresponding to an actual time between a first reference event and a second
15 reference event occurring after the first reference event; calculating a plurality of compensation values, each compensation value corresponding to the predetermined time interval and one of the actual time intervals; and utilizing each compensation value for reducing a difference between the count value and the threshold value. Similar amendments are also made for claim 18. Additionally, dependent claims 3, 4, 5, 6, 9, 11, 20, 22, 23, 26,
20 and 28 are amended to correspond to currently amended claims 1 and 18. No new matter is entered. In particular, please refer to Fig.2 and Fig.3 showing step 120 (track actual time interval), step 130 (calculate compensation value), and step 140 (reduce difference) being within a loop (the "No" branch from step 150); these steps being repeatedly performed to calculate a plurality of compensation values, each being utilized in step 140 to reduce the
25 difference. The detailed operation of these steps is further explained in paragraphs [0024] -- [0027].

Applicant asserts that the present invention as claimed in currently amended claim 1 is not anticipated by Kawai because Kawai do not teach tracking an actual time interval

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between each of the reference events, calculating a plurality of compensation values each compensation value corresponding to one of the actual time intervals, and then utilizing each compensation value for reducing a difference between the count value and the threshold value, as is claimed in claim 1 of the present invention. Applicant points out that Kawai teach in col
5 8, lines 48-53, "when the first basic clock signal is selected as the system clock signal, the microcontroller 31 measures the period of the second basic clock signal, and corrects, within the measured period, a numerical value counted when the second basic clock signal is selected as the system clock signal." In this way, only a single corrective coefficient is utilized by Kawai. This is also shown in Fig.6 by Kawai as the corrective coefficient
10 calculated in step S7 is only performed if the system is operating with a system clock signal being equal to the 1st basic clock signal in step S1. Later, as shown in Fig.7, when the system clock signal is not equal to the 1st basic clock signal (the the "No" path from step T3), the single corrective coefficient value already having been previously calculated is then continuously utilized to correct the clock pulse in T10. For at least the reason that Kawai does
15 not teach or suggest calculating a plurality of compensation values, each compensation value corresponding to the predetermined time interval and one of the actual time intervals, and utilizing each compensation value for reducing a difference between the count value and the threshold value, as is claimed in currently amended claim 1, applicant asserts that the present invention as claimed in currently amended claim 1 should be found allowable with respect to
20 Kawai. A similar argument also applies for currently amended claim 18. As claims 3, 4, 5, 6, 9, 11, and 12 are dependent on claim 1, and claims 19, 20, 21, 22, 23, 26, and 28 are dependent on claim 18, if currently amended claims 1 and 18 are found allowable, so too should the dependent claims 3, 4, 5, 6, 9, 11, 12, 19, 20, 21, 22, 23, 26, and 28.

Additionally, applicant points out that Kawai uses a hardware method while the present
25 invention utilizes a software approach. The teachings of Kawai require a precise timer to calibrate an imprecise clock, however, the present invention method inputs a precise clock into a timer to thereby calibrate an imprecise timer. The most important aspect of the method of Kawai is the ability to calibrate a clock having a constant error (e.g., 1ms \rightarrow 1.2ms).

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Because there is a constant offset, Kawai only needs to perform the calibration operation one time. In the present invention, applicant is trying to overcome the fact that the error may not be constant. In fact, there may be a dynamic change error. The teachings of Kawai are unable to solve this problem, therefore, the problem that is trying to be solved by Kawai is different
5 than that solved by the present invention. That is, the teachings of Kawai are unable to manage this type of real time dynamic error.

For at least the above reasons, reconsideration of currently amended claims 1 and 18, and their respective dependent claims is respectfully requested.

10 **Claims 13, 15, 17, 30, and 34 are rejected under 35 USC 102b as being anticipated by US patent no. 4,903,251 to Chapman**

In addition to the above described amendments, independent claim 13 is amended to specify that each actual time interval corresponding to an actual time between a first reference event and a second reference event occurring after the first reference event. Additionally,
15 claim 13 is amended to state updating the count value according to a value being dynamically calculated by accumulating a plurality of actual time intervals corresponding to a plurality of reference events. Similar amendments are made for claim 30. Additionally, dependent claims 15, 16, 32 and 33 are amended to correspond to currently amended claims 13 and 30. No new matter is entered. In particular, refer to paragraph [0042] stating, "By dynamically adjusting
20 the difference between a count value and a threshold value for the imprecision of an unstable timer in a timer system, the amount of time passed is closer to the desired amount." And paragraph [0040] stating, "the count value CV could very well track the actual amount of time. For instance, in the above example, instead of storing a value of 2 when the actual time interval is 40ms into the count value, the timer system 10 could store 40. In this case, we no
25 longer count events, which represent a certain amount of time, but we count the time itself."

Applicant asserts that the present invention as claimed in currently amended claim 13 should not be anticipated by Chapman because Chapman does not teach "updating the count value according to a value being dynamically calculated by accumulating a plurality of actual

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time intervals corresponding to a plurality of reference events", as is claimed in currently amended claim 13. Applicant points out that Chapman teaches "periodically correcting the time-of-day value using a calibration offset measured by manufacturing test equipment and permanently stored in nonvolatile memory" (see abstract) Furthermore, Applicant asserts that

5 it would not be obvious to modify the teachings of Chapman to dynamically update the value utilized to update the count value because Chapman teach in col 6, lines 39-43 that "Since the calibration or test signal generated by microcontroller 10 is generated only during production testing, interference of the test signal with audio signals or other signals within electronic system 60 during normal operation is avoided. Furthermore the correction factor

10 determination is fully automated and can be integrated with the normal production testing performed on electronic system 60". For at least the reason that Chapman does not teach or suggest "updating the count value according to a value being dynamically calculated by accumulating a plurality of actual time intervals corresponding to a plurality of reference events", as is claimed in claim 13, applicant asserts that the present invention as claimed in

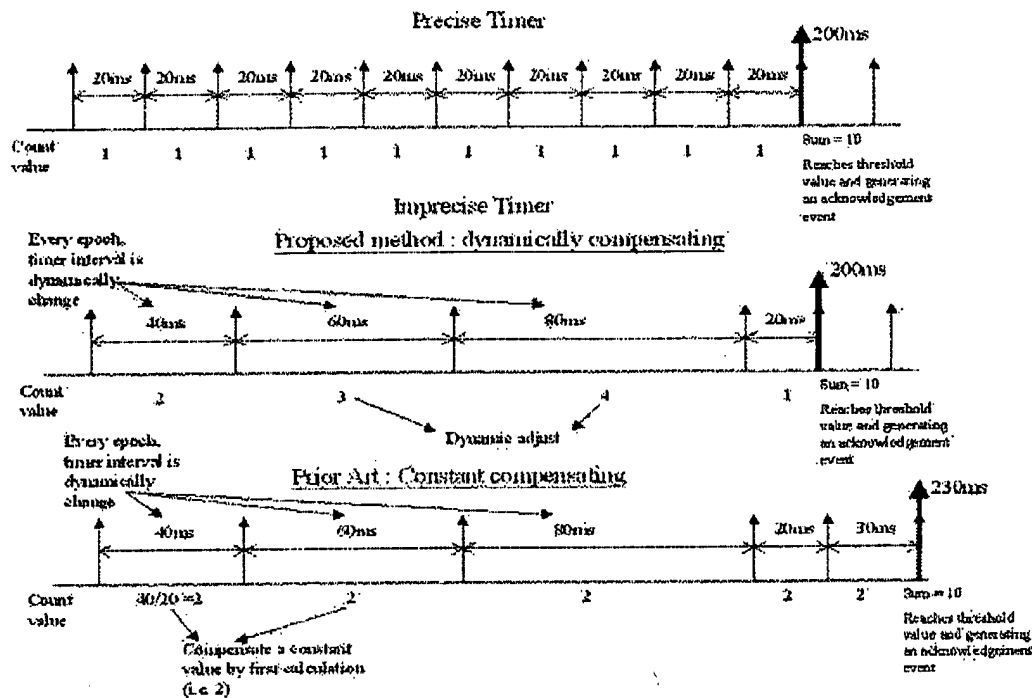
15 currently amended claim 13 should be found allowable with respect to Chapman. A similar argument also applies to claim 30. As claims 15, 16, and 17 are dependent on claim 13, and claims 31, 32, 33, and 34 are dependent on claim 30, if claims 13 and 30 are found allowable, so too should dependent claims 15, 16, 17, 31, 32, 33, and 34.

Additionally, applicant points out that the problem solved by Chapman involves an

20 accumulation error. That is, Chapman do not solve each epoch error. Therefore, in col 5, lines 12-22, Chapman state this kind of method is only applicable to overall accuracy of the clock, and not the epoch accuracy. As shown in the below diagram, because the method of Chapman solves an accumulation error, he accumulates each time to a final time by adding an accumulated error value (called delta). Such operation is repeated because after counting is

25 finished, another set of counting is performed. In the same way as described earlier for the rejection in view of Kawai, the teachings of Chapman are unable to solve the real time dynamic error as is solved by the present invention.

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For at least the above reasons, reconsideration of currently amended claims 13 and 30, and their respective dependent claims is respectfully requested.

- 5 **Claims 16 and 33 are rejected under 35 USC 103a as being unpatentable over Chapman in view of US patent no. 3,889,189 to Lode**

As previously mentioned, as claims 16 and 33 are dependent on base claims believed allowable by applicant, applicant asserts that both claims 16 and 33 should too be found allowable for at least the same reasons as the base claims. Reconsideration of claims 16 and

- 10 33 is respectfully requested.

Claims 1-3, 5, 9, 11-15, 17-20, 22, 26, 28-32, and 34 are rejected under 35 USC 103a as

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being unpatentable over US patent no. 4,896,321 to Kawahara in view of US patent no. 4,903,251 to Chapman

Applicant asserts that currently amended independent claims 1, 13, 18, and 30 should not be found unpatentable over Kawahara in view of Chapman because the combination of
5 Kawahara and Chapman does not result in the present invention as claimed in claims 1, 13, 18, and 30.

The Examiner noted that Kawahara does not include a corresponding method for correcting the number of counted interrupts, but stated that "it would have been obvious to one having ordinary skill in the art to modify the invention of Kawahara to include a
10 corresponding method for correcting the number of counted interrupts, as taught by Chapman, because, as suggested by Chapman, the combination would have improved the accuracy of the invention of Kawahara by correcting the interrupt count determined by the interrupt processing units of Kawahara through the application of a compensation value to account for frequency errors".

15 Concerning currently amended independent claims 1 and 18, applicant points out that neither Kawahara nor Chapman teach tracking an actual time interval between each of the reference events, calculating a plurality of compensation values each compensation value corresponding to the predetermined time interval and one of the actual time intervals, and utilizing each compensation value for reducing a difference between the count value and the
20 threshold value, as is claimed in claims 1 and 18. More specifically, Chapman simply teaches a single "calibration offset measured by manufacturing test equipment and permanently stored in the nonvolatile memory" (see abstract of Chapman) Therefore, improving the accuracy of the invention of Kawahara through application of a compensation value as taught by Chapman does not result in the present invention. That is, a permanently stored
25 compensation value in an EEPROM is not equivalent to "calculating a plurality of compensation values, each compensation value corresponding to the predetermined time interval and one of the actual time intervals, and utilizing each compensation value for reducing a difference between the count value and the threshold value as is claimed in

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currently amended claims 1 and 18. For at least this reason, applicant asserts currently amended claims 1 and 18 and their dependent claims 3, 4, 5, 6, 9, 11, 12, 19, 20, 21, 22, 23, 26, and 28 should be found allowable with respect to Kawahara in view of Chapman. Reconsideration of claims 1 and 18 and their respective dependent claims is respectfully
5 requested.

Concerning independent claims 13 and 30, applicant points out that neither Kawahara nor Chapman teach updating the count value according to a value being dynamically calculated by accumulating a plurality of actual time intervals corresponding to a plurality of reference events, as is claimed in claims 13 and 30. More specifically, Chapman simply
10 teaches "periodically correcting the time-of-day value using a calibration offset measured by manufacturing test equipment and permanently stored in the nonvolatile memory" (see abstract of Chapman) Therefore, improving the accuracy of the invention of Kawahara through application of a compensation value as taught by Chapman does not result in the present invention. That is, using a calibration offset measured by manufacturing test
15 equipment and permanently stored in an EEPROM is not equivalent to "updating the count value according to a value being dynamically calculated by accumulating a plurality of actual time intervals corresponding to a plurality of reference events", as is claimed in claims 13 and 30. For at least this reason, applicant asserts currently amended claims 13 and 30 and their dependent claims 15, 16, 17, 31, 32, 33, and 34 should be found allowable with respect to
20 Kawahara in view of Chapman. Reconsideration of claims 13 and 30 and their respective dependent claims is respectfully requested.

Claims 4,16,21 and 33 are rejected under 35 USC 103a as being unpatentable over Kawahara in view of Chapman and further in view of US patent no. 3,889,189 to Lode

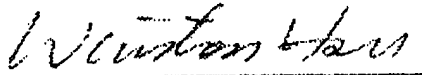
25 As previously mentioned, as claims 4, 16, 21 and 33 are dependent on base claims believed allowable by applicant, applicant asserts that both claims 4, 16, 21 and 33 should too be found allowable for at least the same reasons as the base claims. Reconsideration of claims 4, 16, 21 and 33 is respectfully requested.

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Claims 6 and 23 are rejected under 35 USC 103a as being unpatentable over Kawahara in view of Chapman and further in view of US patent no. 4,374,358 to Hirose

- As previously mentioned, as claims 6 and 33 are dependent on base claims believed
- 5 allowable by applicant, applicant asserts that both claims 6 and 33 should too be found allowable for at least the same reasons as the base claims. Reconsideration of claims 6 and 33 is respectfully requested.

- 10 Sincerely yours,



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- Note: Please leave a message in my voice mail if you need to talk to me. (The time in D.C.
- 20 is 12 hours behind the Taiwan time, i.e. 9 AM in D.C. = 9 PM in Taiwan.)